



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,366	06/08/2001	Sam Kao	M-9925 US	1516

7590 03/09/2004

MacPherson Kwok Chen & Heid, LLP
2001 Gateway Place
Suite 195E
San Jose, CA 95110

EXAMINER

KACKAR, RAM N

ART UNIT PAPER NUMBER

1763

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/877,366

Applicant(s)

KAO, SAM

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 18-30 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1763

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 1-12 and 18-26, drawn to an apparatus and cancellation of non-elected claims 13-17 is acknowledged.

Double Patenting

2. Terminal disclosure in response to rejection of claims 1-12 and 18-23 under the judicially created doctrine of obviousness-type double patenting is acknowledged.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 7-12, 18-23 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito Kunio et al (JP 57045233) in view of Oleg Siniaguine (US 6139678).

Ito Kunio discloses a plurality of vortex chucks in an article holder to (Fig 1,2 and 5 and abstract) but does not disclose vortices with variable inlet cross-section area, variable distribution of vortices on the article holder, variable amount of gas in some vortices and mounting the article holder to a drive for moving the substrates in to position for processing.

Oleg Siniaguine discloses an article holder with non-contact wafer holders mounted to an angle drive (Col 3 lines 47-50) and discloses all the cited limitations (Fig 1).

Art Unit: 1763

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to implement the article holder to a drive mechanism like that of Oleg Siniaguine in order to be able to expose substrates to a processing environment.

Regarding claims 1, 2, 4, 8, 10, 12, 21 and 28 the features related to the geometry of size and distribution of vortices, control the amount and location of pressure on the substrate and would need to be adjusted for implementing specific applications. Adjusting size of elements for optimization has been held obvious.

5 Claim 18 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bollinger et al (US 6467297) in view of Oleg Siniaguine (US 6139678).

Bollinger et al disclose an article holder using vortex chucks to hold substrates (Abstract) and disclose cooling due to the gas coming out of the vortex chamber at ambient temperature of active cooling using temperature control of the vortex gas (Col 3 line 3-4 and lines 43-49).

Bollinger et al do not disclose mounting the article holder to a drive for moving the substrates in to position for processing.

Oleg Siniaguine discloses an article holder with non-contact wafer holders mounted to an angle drive (Col 3 lines 47-50) and discloses all the cited limitations (Fig 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to implement the article holder to a drive mechanism like that of Oleg Siniaguine in order to be able to expose substrates to a processing environment.

Regarding claims 24 and 27 use of the cooling facilities would be in intended use and would be a process limitation, supported by the disclosure.

Allowable Subject Matter

6 Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 6 is allowable since the prior art does not disclose non-tangential gas inlet on the vortices.

Response to Amendment

Applicant's arguments filed 12/19/2003 have been fully considered but they are not persuasive.

Applicant argues against examiners position that the elements are adjustable.

When stating that it was obvious to make the elements adjustable examiner meant that the geometries, which includes size and placement of vortices, could be modified for any particular application. It was not meant to say that adjustability was process specific. This has been clarified above.

Applicant agrees that the chamber geometry may have to be adjusted. The optimization of the invention disclosed in Ito Kunio could mean size of various vortices as well as their number and placement.

Applicant's arguments regarding gas flow, pressure and cooling are in regards to intended use. The size and placement of vortices could be related merely to hold articles.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700